

(FOR THE CANDIDATES ADMITTED

24UBP3A1

DURING THE ACADEMIC YEAR 2024 ONLY)

REG.NO. :

N.G.M.COLLEGE (AUTONOMOUS): POLLACHI
END-OF-SEMESTER EXAMINATIONS: NOVEMBER-2025

B.COM (BPS)

MAXIMUM MARKS: 75

SEMESTER: III

TIME: 3 HOURS

PART - III

24UBP3A1 – BUSINESS MATHEMATICS

SECTION – A

(10 X 1 = 10 MARKS)

ANSWER THE FOLLOWING QUESTIONS.

(K1)

- The set of all elements which belong to sets A or B or both A and B is known as _____.
 - Union of sets
 - Intersection of sets
 - Complement of a set
 - Difference of two sets
- If the ratio of the consecutive terms of a progression are same, then it is known as _____.
 - Common Ratio
 - Geometric Progression
 - Arithmetic Progression
 - Harmonic mean
- Find the simple interest on Rs. 200 at 8% for 2 years _____.
 - Rs. 320
 - Rs. 32
 - Rs. 3200
 - 232
- When the number of rows and the number of columns of a matrix are equal, the matrix is called _____.
 - Row Matrix
 - Column Matrix
 - Square Matrix
 - Zero Matrix
- The Integral for $\int x^7$ is _____.
 - $x^7/7$
 - $x^8/8$
 - x^7
 - x^8

ANSWER THE FOLLOWING IN ONE (OR) TWO SENTENCES

(K2)

- Define Null set.
- What is Arithmetic Progression?
- Interpret & find the compound interest on Rs. 20000 for 5 years at 20% per annum.
- Construct & find the order of matrix $\begin{bmatrix} 3 & 2 & 18 & -8 \\ 4 & 7 & 17 & -4 \\ 2 & 8 & 21 & -3 \end{bmatrix}$
- Interpret $\int x^{-12}$

(CONTD 2)

SECTION – B**(5 X 5 = 25 MARKS)****ANSWER EITHER (a) OR (b) IN EACH OF THE FOLLOWING QUESTIONS. (K3)**

11. a) List the types of Sets with suitable examples. **(OR)**
 b) If $A = \{1,2,3,4,5\}$; $B = \{3,4,5,6,7\}$ and $C = \{1,2,6,7\}$
 Find (a) $A \cup (B \cap C)$ (b) $A \cap (B \cup C)$
12. a) Find 17th term of the series (Arithmetic Progression) 20,18,16,14,..... **(OR)**
 b) Find the Geometric Progression where 7th term is 320 and 10th term is 2560.
13. a) Find the rate of interest per annum if the simple interest on a principal of Rs. 5000, is Rs. 800 for 4 years. **(OR)**
 b) Calculate the Compound interest for Rs. 2500 for 4 years at 8% per annum.
14. a) List the different types of matrices with example. **(OR)**
 b) Find the value of the determinant $\begin{vmatrix} 3 & -2 & 1 \\ 2 & 3 & -1 \\ 1 & 1 & 1 \end{vmatrix}$
15. a) Interpret and Evaluate $\int (5 - 4x - x^2 + 2x^3) dx$ **(OR)**
 b) Interpret and Evaluate i) $\int x^3 dx$ ii) $\int x^{-3} dx$

SECTION – C**(5 X 8 = 40 MARKS)****ANSWER EITHER (a) OR (b) IN EACH OF THE FOLLOWING QUESTIONS. (K4 (Or) K5)**

16. a) Discuss De-Morgan's law for two sets and three sets with Venn diagram. **(OR)**
 b) Using Venn diagram, prove that (a) $(A \cup B) \cap C = (A \cap C) \cup (B \cap C)$
 (b) $(A \cap B) \cup C = (A \cup C) \cap (B \cup C)$
17. a) Interpret the first term and the common difference of the progression where 8th and 102th terms are respectively 23 and 305. **(OR)**
 b) The 3rd term of a G.P. is 12 and 6th term is 96. Interpret the sum of nine terms.
18. a) The difference between the compound interest and the simple interest for 3 years at 5% p.a. on a certain sum of money was Rs. 610. Interpret the sum. **(OR)**
 b) Summarize the types of Annuities with example.
19. a) If $A = \begin{bmatrix} 1 & 2 & 3 \\ 2 & 4 & 6 \\ 3 & 6 & 9 \end{bmatrix}$ and $B = \begin{bmatrix} -1 & -2 & -4 \\ -1 & -2 & -4 \\ 1 & 2 & 4 \end{bmatrix}$ Interpret AB and BA. **(OR)**
 b) Examine and solve the equations by matrix method: $3x + 2y = 14$ and $3x + 3y = 18$
20. a) Differentiate $\frac{x^7 + x^3 + x^2}{x^2}$ with respect to x. **(OR)**
 b) Differentiate $(3x^2 + 4x - 5)^3$ with respect to x